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USPT	pager or (selective adj device)	6703	<u>L1</u>

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Generate Collection

L9: Entry 4 of 7

File: USPT

Nov 4, 1997

DOCUMENT-IDENTIFIER: US 5684859 A

TITLE: Method and apparatus for downloading location specific information to selective call receivers

## BSPR:

When a subscriber roams from service area-to-service area, the service provider has to be kept informed of such roaming to make sure that the pages designated to a roaming subscriber will reach the selective call receiver. Typically, this has been accomplished by requiring the subscriber to provide an itinerary and schedule to the service provider before departing on a trip. The service provider would manually configure a paging system subscriber database to send pages destined for the roaming subscriber at the destination service area (or service areas) corresponding to the itinerary and schedule. Upon returning home from the trip, the subscriber again would contact the service provider to reconfigure the paging system subscriber database for sending pages destined to the subscriber at the home service area. This can be a laborious endeavor, and is subject to human error because the subscriber has to remember to contact the service providers, which tends to reduce the efficiency and accuracy of the paging system operations thereby adding operational costs and potentially frustrating customers who missed pages sent to incorrect destination service areas. Furthermore, irrespective of the geographic location of a subscriber, it is desirable, along with sending paging messages, to send other information that are associated with subscribers operation in the new geographic area.

## DEPR:

FIGS. 5 and 6 are illustrations of wide geographic area paging systems. Specifically, FIG. 5 illustrates a paging system service area (geographic location) paging system 502 capable of transmitting pages to a satellite transceiver 504. The satellite transceiver 504 comprises a satellite receiver 506 for receiving pages which can be processed by the satellite transceiver 504 before being transmitted by a satellite transmitter 508 in another service area in a different service area 510. FIG. 6 similarly illustrates the satellite transceiver 504 having receiver 506 and transmitter 508 which couple different geographic coverage areas irrespective of their relative locations. For example, the satellite transceiver 504 couples geographic coverage area 510 with geographic coverage area 602, both located on the same continent; and couples geographic coverage area 510 with geographic coverage area 604, both located on different continents. In this way, the selective call receivers 108 are able to roam all over the world while still receiving pages and location specific information without any actions from the subscribers of these roaming selective call receiver 108.

## DEPR:

In one aspect of the present invention, the paging system 700 periodically transmits its unique service area (location) identifier over the service areas or geographic locations. The location identifier identifies to the receiving pager/cordless telephone transceivers 720 the service area (geographic location) in which they are currently receiving pages. Therefore, when the pager/cordless telephone transceiver 720 receives the location identifier, it can determine therefrom that it has roamed to another service area when the new location identifier is different from the "home" service area's location identifier. The "home" service area of the pager/cordless telephone 720 is the service area assigned to the pager/cordless telephone 720 when it is not roaming. It is also well to those of ordinary skill in the art that the paging systems in different service areas may operate on different frequencies that can be received by the selective call receivers or pager/cordless telephone by scanning through the

plurality of frequencies to select a desired frequency.

DEPR:

In this way, when the "home" service area receives a page to be transmitted to the pager/cordless telephone 720 which is roaming in a different service coverage area (geographic location) of which the location identifier is known, the "home" service area reroutes the pages and downloads the location specific information to the pager/cordless telephone in the new service area. It is well known by one skilled in the art how to categorize and store information associated with a pager/cordless telephone 720, and how to reroute pages to be transmitted in different service areas. Preferably, the paging controller of the home service area generates a message routing request when a page is received addressed to a transceiver located in a new service area. Therefore, according to the preferred present invention present invention, the pager/cordless telephone 720, when it receives a different location identifier, knows that it is in a different service area. It then transmits the new location identifier to the "home" service area. The "home" service area stores the location identifier, and uses it to automatically reroute all pages and location specific information to that pager/cordless telephone 720 indicated by the location identifier. Also, the paging controller of new service area, when the pager/cordless telephone 720 is authorized, downloads location specific information to the pager/cordless telephone 720. It is understood by one of ordinary skilled in the art that the downloading of location specific information is preferably done initially when the selective call receiver or pager/cordless telephone has roamed to a new service area.

DEPR:

Next, the subscriber identification code (ID) and location identifier is recalled from the subscriber data base 130 (FIG. 1) 1014 for determining whether the selective call receiver 108 has roamed to another service area. The selective call receiver 108 informs the "home" service area that the selective call receiver 108 is located in another service area indicated by the transmitted location identifier. Therefore, when the paging system receives a page for a selective call receiver 108 determined to be located outside its "home" service area, the paging controller 104 calls the service area indicated by the location identifier and reroutes the page (message) to the other service area 1020 for transmission of the message to the selective call receiver 108. In step 1022, the paging controller 104 determines if the selective call receiver 108 is authorized to receive downloaded location specific information. The paging controller 104, for example, stores a list of authorized selective call receivers 108 and when the paging controller 104 receives the ack-back signal having the identifier of a selective call receiver 108 transmitting same, the paging controller 104 compares the identifier with the list to determine if the selective call receiver is authorized. The paging controller 104 knows the selective call receiver 108 is located outside its "home" service area because the selective call receiver 108 has previously informed the "home" paging system of its current geographic location. The paging controller 104 also downloads the location specific information corresponding to the new location identifier in the subscriber database 130. Preferably, by assigning each location identifier a telephone number of the geographic location of the paging system, each paging system, that has the information stored in memory, is able to determine the service area to reroute paging messages addressed to that selective call receiver. Therefore, by allocating each geographic location (service area) with unique location identifier, the home paging system is able to determine the service area of the selective call receiver that has logged-in with the new location identifier. The paging controller 104, upon receipt of the location identifier, stores the new location identifier. When it receives pages for that selective call receiver, the paging controller, retrieves the location identifier to determine the selective call receiver's 108 location, and reroutes the page and any location specific information to the geographic location identified by the location identifier. As is well known by one skilled in the art, the rerouting of page and information can be accomplished by a satellite or microwave links or any equivalent communication links suitable for such transfer.

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USPT	selective adj call adj receiver	734	<u>L8</u>
USPT	13 and 16	17	<u>L7</u>
USPT	wireless	26597	<u>L6</u>
USPT	13 and 14	7	<u>L5</u>
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